August 1978, Vol. III, No. 8

ENDANGERED SPECIES TECHNICAL BULLETIN

Department of the Interior • U.S. Fish and Wildlife Service • Endangered Species Program, Washington, D.C. 20240

Revised Wolf Control Measures Proposed By Service

Modifications have been proposed by the Service in its special regulations concerning the taking of gray wolves (*Canis lupus*) in Minnesota to extend and clarify the Service's authority in dealing with wolf depredations (F.R. 7/5/78).

Due to the high incidence of predation in certain areas of the State, along with mounting local concern that wolves may be posing an increasing threat to human livelihood, the Service has proposed to elaborate on existing regulations in an effort to resolve conflicts which may otherwise work against the long-term welfare of the wolf. In cases of unusually large numbers of continuing depredations on livestock or other domestic animals, the proposed rulemaking would allow the legal taking of wolves without regard to whether the animal(s) involved could be tied to a particular depredation so long as no adverse consequences to the overall wolf population in the area would result.

In an earlier rulemaking, the Service reclassified the wolf as a Threatened species in Minnesota and designated Critical Habitat for the species in that

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Tellico Dam Options Listed In New Report

The Tennessee Valley Authority (TVA) and the Department of the Interior have released a joint preliminary report to the Congress outlining alternatives for completing TVA's Tellico Dam.

While not purporting to recommend any specific plan for resolution of the matter at this time, the August 10 report reveals that there are several

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3 Sea Turtles Listed As Threatened: Certain Populations Endangered

Following years of factfinding and debate, Endangered Species Act protection has been extended to the three remaining major species of sea turtles.

In a final rulemaking issued jointly by the National Marine Fisheries Service (NMFS) of the Department of Commerce and by the Fish and Wildlife Service, the loggerhead sea turtle (*Caretta caretta*), green sea turtle (*Chelonia mydas*), and olive (formerly Pacific) ridley (*Lepidochelys olivacea*) have been classified as Threatened species (F.R. 7/26/78).

In addition, the vulnerable Florida and Mexican Pacific coast breeding populations of green sea turtles and the Mexican Pacific coast population of breeding olive ridleys have been listed as Endangered. The rulemaking takes effect August 26.

All populations of Kemp's (formerly Atlantic) ridley (*Lepidochelys kempii*), hawksbill sea turtle (*Eretmochelys imbricata*), and leatherback sea turtle (*Dermochelys coriacea*) were previously listed as Endangered in 1970.*

Background

Actions to federally protect these turtles have been in progress since December 28, 1973, when a proposal to list the loggerhead and green was published by FWS under the Endangered Species Conservation Act of 1969. Coincidentally, on that same day the Endangered Species Act of 1973 was signed into law, superseding the old legislation and conferring legal authority for such a proposed regulation upon both Interior and Commerce.

In brief, the present rulemaking stems from a 1974 status review of the three species (in response to a petition requesting their listing) which led to a May 20, 1975, NMFS/FWS proposal to list the loggerheads, greens, and "Pacific" ridley as Threatened species. (On August 20, 1975, notice of intent to hold public hearings and prepare an environmental impact statement on the matter was issued.) On June 16, 1976, NMFS/FWS issued a proposal to list the green and loggerhead sea turtles and "Pacific" ridley under the "similarity of appearance" provision of the law.

The proposed regulations have been opened to comment three times—in 1975, 1976, and most recently from March 27 to April 17, 1978. This has yielded more than 70 substantive comments on a number of key issues. These issues included whether or not to list the entire three species of sea turtles, or individual populations, as Endangered or Threatened; whether to allow exceptions for mariculture and incidental taking by commercial fishermen; and whether to allow subsistence taking of the turtles.

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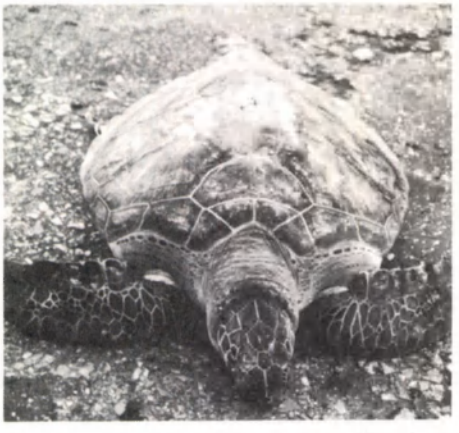

This green sea turtle was being offered for sale in a Belize market when photographed by C. Kenneth Dodd, Jr., Office of Endangered Species herpetologist. Dodd bought the turtle and released it back into the sea.

* Herpetologists and others involved in sea turtle research and recovery planning generally agree that the Atlantic and Pacific ridleys should be commonly named the Kemp's ridley and olive ridley, respectively.

Regional Briefs

Endangered Species Program regional staffs have reported the following recent activities in their areas:

Region 2. Representatives of the U.S. Forest Service and the Arizona Game and Fish Department at a recent meeting with regional personnel voiced support for a plan to reintroduce the Colorado squawfish (*Ptychocheilus lucius*) into the Salt River, Arizona. The plan also has been submitted to the White Mountain Apache Indian tribe. The upper portion of the river flows through the tribe's reservation.

Region 3. Jack Hemphill, director of the Service's six-state Region 3 since 1973, has retired from the Service. A veteran of 30 years in professional fish and wildlife management, on both state and Federal levels, Hemphill received Interior's Meritorious Service Award in 1973. He has worked to resolve the Minnesota wolf controversy and other Endangered species issues in the Great Lakes area, and cites the laboring of Federal employees behind the scenes as the secret to effective government.

Region 4. An Endangered Species Notebook is being distributed within Region 4 to Federal and state offices needing current information on listed species and designated Critical Habitats. The notebook also contains information on species status reviews, proposed rulemakings, recovery teams, and other program materials.

Region 5. Contracts for status reports on the endangered flora of Virginia and New York State have been let to the Research Division of Virginia Polytechnic Institute and to the State University and Regents Research Fund, New York State Education Department.

Alaska Area. Previously unsearched areas of Alaska are being surveyed in an effort to locate new arctic peregrine falcon (*Falco peregrinus tundrius*) nesting areas. One new nest was found in a July 20-27 search along 40 miles of the Kogosukruk River. Several other nesting raptor species also were observed during the survey.

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Tellico (continued from page 1)

feasible beneficial alternatives to developing the 38,000 acres of the Tellico project lands. Specifically, the report presents three basic options for completing the project:

1. Close the dam and form the reservoir as originally planned. Should this approach be adopted, "it will be necessary to secure the continued well-being of the snail darter by whatever means available," perhaps through transplantation.

2. Leave the dam in place, and build a dam and reservoir on the Tellico River tributary of the Little Tennessee. (This alternative does not warrant further study, according to the report, as it would add to the overall costs and produce very little benefits.)

3. Develop the river and surrounding project lands without creating a permanent reservoir. Two variations have been considered under this option: Use the dam for flood control purposes only, which would mean creation of a small, temporary reservoir, or, remove the earthen portion of the dam, allowing the river to return to its natural condition.

Another approach would be to pursue none of the "completion" options, but rather to remove the earthen portion and sell most of the land at the highest possible price. (On a net liquidation basis, this could result in a saving of $30-50 million to the taxpayers, according to the report.)

Value Dilemma

In releasing the report, Assistant Interior Secretary Robert L. Herbst emphasized the difficulty in evaluating the benefits of the options now under consideration. "Even more elusive, and hence more frustrating, are those benefits which are of obvious and perhaps immense public value but for which there is no generally accepted measure of value."

TVA and the Interior Department will welcome comments on the report through September 10, 1978.

Murphy Heads New OES Program Branch

John M. Murphy, 31, has been appointed chief of the newly established Program and Administrative Services Branch in the Office of Endangered Species. A graduate of the University of Maryland in business administration, Murphy will coordinate development of the budget, program advice, and annual work plans for the program and act as administrative officer.

Revised Wolf Control Measures Proposed By Service

(continued from page 1)

State (together with Isle Royale National Park in Michigan—see Aprii 1978 BULLETIN). This ruling on March 9, 1978, also permitted designated employees or agents of the Service or Minnesota's Department of Natural Resources to take wolves from management zones 2, 3, 4, or 5 (see map) without a permit if they are "committing significant depredations on lawfully present domestic animals," so long as the wolves are taken in a humane manner.

Due in part to the sequence of events surrounding a situation of heavy wolf predation on a farm in northern Minnesota, however, it now appears that the March 9 regulations, as strictly interpreted, are not sufficiently workable to alleviate continuing predation problems. According to the Service, a more flexible approach may be necessary in areas where there has been "a highly unusual history of wolf depredation on livestock," and where it is apparent that "significant depredations will continue unless wolf numbers are reduced."

Farmer's Court Suit

Claiming the loss of substantial numbers of cattle on his farm (in zone 4) to predatory wolves, Julius Brzoznowski brought suit against the Department of the Interior in 1977, requesting relief and damages.

Following a February 1978 order from the U.S. District Court of Minnesota (Fifth District) to resolve the immediate problem of depredating wolves on the Brzoznowski farm, the Service found itself in a rather untenable position, in terms of its options under existing law. The Service, directed by Congress to promote the protection of listed species under the Endangered Species Act of 1973, was being directed by the court to provide for the control of specific depredating wolves and at the same time comply with the broader requirement stipulated by the court—that of minimizing, if not preventing, depredations on the Brzoznowski farm.

In early May, the Service—in line with the Minnesota court order—agreed to live-trap wolves in the vicinity of the Brzoznowski farm and translocate them to other parts of the State in hopes of minimizing further depredation. (Prior to this agreement, the Service was aware that five or more wolf packs were occupying the area around the farm.)

Recovery Team Advisory

On May 16, 1978, the wolf recovery team advised the Service that in its opinion the translocation of captured wolves to other parts of Minnesota was "biologically unsound." It pointed out that areas of Minnesota which constitute the best wolf habitat already contain as many wolves as they can carry. To resolve the predation problem, the team recommended that the Service adopt its earlier suggestion, contained in the recovery plan, that the wolf population in zone 4 be held to 1 per 50 square miles by a regulated annual hunting and trapping season. (See accompanying story.)

The U.S. Forest Service also determined, and so advised FWS, that no additional live-trapped wolves could be released in the Superior National Forest after May 24, further recommending against the relocation of trapped wolves in any other areas.

Subsequently, on May 19, the Service issued a directive allowing a "special exception" in the case of wolves captured in the area of the Brzoznowski farm. Wolves could be taken and disposed of without translocation or without prior evidence of livestock loss if the threat of livestock losses was imminent.

A gray wolf Photo by L. David Mech

This exception became the focus of a second U.S. District Court action, filed on June 12 by the Fund for Animals, Inc., and other conservation groups, in which the plaintiffs contended that the taking of these wolves was in direct violation of the final regulations for wolf depredation control.

The court, in a decision handed down July 14, basically agreed with the conservationists in terms of the Service's policy under existing law and regulations. It said the effect of the Service's directive "is to remove all prohibition against the taking of any wolves except the animal or animals which are reasonably believed to be, or are likely to be, responsible for killing livestock. . . ."

The court has issued a permanent injunction barring the Service from trapping and killing wolves in management zones 2, 3, 4, and 5 "except when such action is necessary and is directed to the removal of a gray wolf or wolves when a reasonable cause exists to believe that said wolf or wolves *have committed a significant depredation* upon livestock lawfully present in said area," in line with the March 9 regulations.

In issuing the decision, the court commented in support of the Service's proposal to clarify its authority, noting that "lawful minimization of the conflict between this threatened species and the populace of northern Minnesota must be attained."

Proposed Provisions/Rationale

In full recognition of the different management programs presented in the recovery plan for the wolf as compared with this proposed ruling, the Service emphasizes that it has opted for a conservative approach in dealing with this highly charged issue. "We must move with great care in managing this species within one of its last

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Timber Wolf Management Zones in Minnesota

Howard Associates Map

strongholds," cautions Keith Schreiner, Endangered Species Program Manager. "Despite the sound biological principles on which the recovery plan is founded, we do not know enough about wolf population dynamics to permit us to allow public hunting or trapping at this time. I would hope, however, that we can return this resident animal to the State for management in the not too distant future."

The proposed rule would allow the taking of wolves without regard to whether or not a particular wolf or wolf pack could be tied to an actual depredation or other conflict with human interests. Such taking would be permitted only upon published findings by the Service that:

1. In the recent past there have been unusually large numbers of wolf/human conflicts in a particular area.
2. Based on the numbers of wolves in a particular area, there is a substantial likelihood that unusually large numbers of such conflicts will continue if some wolves are not removed.
3. Wolves can be taken in the area without there being any adverse consequences to the wolf's numbers in the particular zone where the conflicts have existed.

The proposal states that taking authorized under these circumstances must be done in a humane manner and be conducted close to the affected area. Moreover, the taking must cease immediately when the Service is no longer able to meet the requirements of all the above three findings.

Under the proposal, the Service would not be committed to any single course of action with respect to the wolves it proposes to remove. "If translocation of some wolves is possible, in a sound, planned program, the attractiveness of that alternative is obvious."

While translocation within Minnesota is presently not sound, the Service said it would pursue the possibility of placing captured wolves in other states as recommended in the recovery plan. However, the Service recognizes there may be some time involved in gaining the necessary acceptance for such an action. Even if reintroduction is allowed, it is believed only a few wolves would be involved.

Some wolves may be relocated to zoos and research facilities. But the Service noted that the wolf breeds well in captivity and the demand from these quarters probably will be small in the long run.

Thus, for want of viable alternatives, the Service noted that some of the wolves taken in dealing with predation problems may have to be destroyed.

Comments on the proposal should be submitted to the Service no later than August 31, 1978.

Timber Wolf Recovery Plan Approved

A recovery plan calling for maintaining and reestablishing viable populations of the eastern timber wolf (*Canis lupus*) "in as much of its former range as is feasible" has been approved by the Service.

Most of the estimated 1,000 to 1,200 wolves remaining in the lower 48 states are concentrated in Minnesota, where the species recently was reclassified from Endangered to Threatened status (F.R. 3/9/78). Presently, the wolf is the subject of controversy on the issue of controlling depredations upon livestock in the northern part of the State (see accompanying story).

The recovery team, headed by Ralph E. Bailey of the Michigan Department of Natural Resources, has recommended steps to deal with the depredation problem and at the same time ensure perpetuation of the Minnesota timber wolf population at "levels optimum to the varying parts of is range." Opimum level, the team says "includes biological carrying capacity and compatibility with man."

Four main factors have been listed by the recovery team as critical to the wolf's long-term survival: (1) availability of adequate wild prey, (2) large tracts of land with low human densities and minimal accessibility, (3) ecologically sound management, and (4) adequate public understanding of wolf ecology and management. "If not for the human element, only the first factor would be significant to wolf survival," the team says.

The recovery plan divides the State into five wolf management zones and prescribes wolf population densities for each zone. The team recommends that complete protection be afforded the wolf throughout its primary range (zones 1, 2, 3). In zone 1, which includes Superior National Forest, wolf numbers would be allowed to fluctuate naturally. In zones 2 and 3, taking would be allowed in only specific cases of documented livestock depredation.

In these two zones, the plan notes that, during a series of severe winters, wolves can contribute to depletion of deer populations to the detriment of both species. In the event deer numbers fall below their ability to support optimum wolf density (one wolf per 10 square miles) over any three-year period, the team says consideration should be given to artificially reducing wolf numbers until the deer herd recovers.

In zone 4, where an increasing number of depredations by wolves have been reported recently, the plan recommends maintaining a wolf population of one per 50 square miles in forested areas to keep wolf/human conflicts at a minimum. Wolf and prey populations should be monitored and the harvest of prey species by hunting should be regulated to maintain the optimum wolf population goal. If wolf numbers increase in this zone beyond the suggested density, the recovery team recommends that the excess be reduced by carefully regulated hunting and trapping.

The team suggests that removal be performed in a November through January hunting season, and that the taking of one wolf per 200 square miles, or 100 wolves, be allowed during the first year of management. (The team assumes that an additional 60 wolves would be taken under a damage control program and another 60 wolves would be taken illegally, for an overall reduction of 220 in one year.) In subsequent years, the take would be adjusted up or down to maintain the optimum density.

Only a few wolves are believed to stray into zone 5, which covers the densely settled lower half of the State. Taking of wolves in this zone would be restricted to authorized Federal and State employees.

The plan also emphasizes the need for rejuvenating mature forests to improve habitat for deer. Conceding that such a plan could prove to be "extremely expensive," the recovery team notes that besides helping the wolf, such improvement would benefit many other species of wildlife, along with hunters and recreationists.

As another conservation measure, the plan recommends that consideration be given to reestablishment of the woodland caribou (*Rangifer tarandus*) in Minnesota's northern bogs to provide an alternate prey species for the wolf. The caribou was extirpated from the State about 1937, but considerable suitable habitat remains.

A concerted public information and education program is advocated to dispel "misinformation disseminated about the wolf by both pro- and anti-wolf advocates." Because the wolf is controversial, the team says local opposition can be expected to any efforts to reestablish the animal in parts of its former range in—and outside—Minnesota. Nonetheless, the team says all possibilities should be explored even if, upon investigation, reintroduction of the wolf turns out to be imprudent.

Rulemaking Actions—July 1978

Mexican Duck Removed From Endangered List

The Mexican duck has been removed from the U.S. List of Endangered and Threatened Wildlife and Plants by the Service in a final rulemaking (F.R. 7/25/78) that becomes effective August 24.

The action is based upon recent status reviews conducted by Arizona, Texas, New Mexico, and the Service, which led to a finding that "Mexican ducks" in the United States are actually hybrids—crosses between true Mexican ducks recently reclassified as *Anas platyrhynchos diazi* and the common mallard (*Anas platyrhynchos*).

Furthermore, the Service said the review showed there were no threats to the continued existence of either the estimated 50,000 pure Mexican ducks in central Mexico or the 5,000 Mexican-like ducks occurring in Arizona, New Mexico, Texas and northern Mexico.

The Mexican duck was listed as Endangered in 1967. Two years ago, however, researchers discovered that the first so-called Mexican ducks collected in the United States and preserved in the Smithsonian Institution actually were genetic hybrids even though they looked like pure Mexican ducks.

(According to a 1977 opinion of the Department of the Interior solicitor, provisions of the Endangered Species Act of 1973 do not apply to hybrids, although the act does provide for the protection of specific geographic populations of species.)

Comments on Proposal

The Service's proposal to deregulate the Mexican duck, published in the *Federal Register* on March 31 (see April 1978 BULLETIN), drew a total of 21 comments. The proposal was supported by the States of Arizona, New Mexico, and Texas, which provided information developed by their biologists in recent years, and by the U.S. Forest Service and also the Bureau of Reclamation.

Deregulation also was backed by Dr. John Aldrich of Washington, D.C., who described the status of the Mexican duck for the "Red Book" (developed by the Committee on Rare and Endangered Wildlife Species, etc. 1965, 1966) on which the original listing by the Service was based. Aldrich said his finding of endangerment because of "drainage of suitable marsh habitat throughout range," which included central Mexico as well as the border, plus hybridization with the mallard, was now "unjustified."

Opposition Views

The Bureau of Land Management, the Fund for Animals, the Environmental Defense Fund, and several scientists objected to the proposal. They raised questions which centered on the issue of whether the Mexican-like ducks along the border are phenotypes or a genotypically pure population deserving protection.

In response, the Service said the Mexican duck apparently exists in genotypically pure populations only in Mexico's central highlands. A large zone of intergradation between the mallard and pure Mexican ducks exists from northern New Mexico to southern Durango, Mexico, where the overall population of ducks in May 1978 was conservatively estimated at 5,000.

The Service said it recognized the scientific value of preserving populations of naturally interbreeding subspecies or species, but to be listed for protection under the act, it must be shown that the entire population—and not just one phenotype—is in jeopardy. The Service said that the overall population of ducks in the zone is stable and is expanding into Arizona and Texas.

No Threat in Mexico

A survey in May and June of this year indicated a population in excess of 50,000 pure *A. p. diazi* in central Mexico, just prior to the nesting season. The Service said, "These ducks are also adapting to local agriculture practices, as in the United States, by feeding extensively in local farmlands. The ducks in this area, as elsewhere, are very wary and not easily approached. No threats to the continued existence of this population of ducks, or any significant segment of it, has been documented." Protection of *A.p. diazi* will continue to be provided under the Migratory Bird Treaty Act of 1918.

First Land Snails Receiving Protection

In issuing this final rulemaking on seven land snails, the Service has added the first U.S. snails to the U.S. List of Endangered and Threatened Wildlife and Plants (F.R. 7/3/78).

Two of the snails have been classified as Endangered, and the other five as Threatened. Each species or subspecies occurs in only one state, and all seven states involved are located in the eastern half of the United States.

Endangered Snails

The following two snails have been listed as Endangered, effective August 2, 1978:

Iowa Pleistocene snail (*Discus macclintocki*). With a population estimated at less than 100, this snail survives in a cave located in Bixby State Park, in northeastern Iowa. It is a unique relic of preglacial times (the species was first described as a fossil), having survived the Ice Age through living in Iowa's nonglaciated driftless area.

Survival of the species depends on continued maintenance of its habitat and protection from collectors (as the Service points out, simply by turning over the loose rocks in which the snail lives, one collector could render the species extinct in an afternoon).

The snail also is threatened by predation by beetles and also possibly by a toxic defoliant used in the general area.

In addition, in the past the state park has been subject to extensive vandalism. Recently, however, management of the park has been turned over to the government of Clayton County.

Virginia fringed mountain snail (*Polygyriscus virginianus*). The only known species in its genus, this snail inhabits a small area on a bluff overlooking the New River, opposite the industrial city of Radford in southwestern Virginia.

The continued existence of the snail population, which totals only a few hundred, is threatened by habitat alteration resulting from quarrying and future road construction activities.

Threatened Snails

The following five snails have been listed as Threatened, effective August 2, 1978:

Painted snake coiled forest snail (*Anguispira picta*). Found only in Buck Creek Cove, in Franklin County in south-central Tennessee, this species lives in an area subject to periodic lumbering. However, there is evidence that the snail cannot survive if its

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natural forest habitat is destroyed. In addition, overcollecting also represents a threat to the species.

The Service originally proposed Endangered status for this snail, but changed it to Threatened on the grounds that logging threats are not imminent.

Noonday land snail (*Mesodon clarki nantahala*). This snail occurs only in two upland localities in Swain County, in western North Carolina. The Service believes that widening of U.S. highway 19, as has been proposed, would destroy nearly all of the known colonies of the noonday land snail.

Stock Island tree snail (*Orthalicus reses*). Once found on several islands in the Florida Keys, this species is now restricted to Stock Island. It was extirpated elsewhere primarily by habitat alteration. The remaining population is threatened chiefly by real estate development, and also perhaps by livestock grazing and overcollecting.

Chittenango ovate amber snail (*Succinea chittenangoensis*), New York State population. This snail occupies a total area of less than 200 square feet consisting of spray zone talus and rocks beneath the Chittenango Falls in Madison County in central New York.

This habitat tends to be heavily trampled by human visitors to the falls. In addition, the snail suffers predation by introduced European snails, *Discus rotundatus* and *Oxychilus*.

Although common around the turn of the century, the snail has suffered a drastic decline in population in recent decades. Biologists believe this reduction to have been caused by pollution of the falls' spray.

Flat-spired three-toothed land snail (*Triodopsis platysayoides*). This species is limited to a small mountaintop in Monongalia County, in northern West Virginia. Between 300 and 500 snails live in isolated patches of deep undisturbed detritus and sheltered retreats on the summit, taking shelter among the boulders just below the summit during dry seasons.

The summit receives many human visitors (there is a concession stand located there), and the detritus is subject to being heavily trampled.

The Service originally recommended Endangered status for this snail, but subsequently opted for Threatened status because of the protection afforded the summit for being located in a state park.

Background

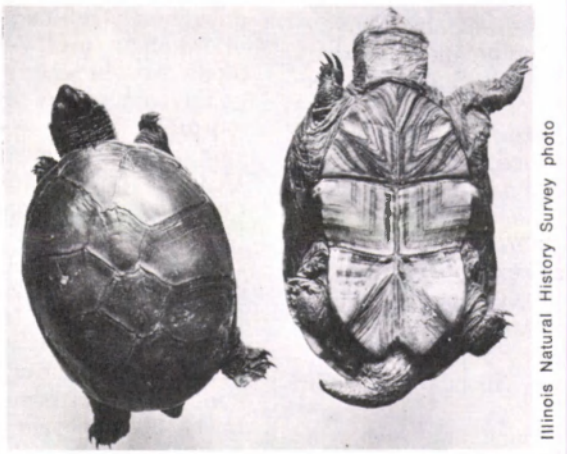
On April 28, 1976, the Service issued a proposed rulemaking to list a total of 11 land snails as either Endangered or Threatened.

Subsequently, the Service received comments from various Federal and state agencies, the Environmental Defense Fund, two private citizens, and several acknowledged snail experts.

All of the respondents expressed support for listing the seven snails included in the final ruling, although they differed in some instances as to the specific status best suited for each species or subspecies and the causes of decline or jeopardy..

Based on comments received and other information, the Service decided to defer making a status determination for the other four species, pending acquisition of more comprehensive data.

Those four snails are Jones' middle-toothed land snail (*Mesodon jonesianus*), the Magazine Mountain snail (*Mesodon magazinensis*), the strange many-whorled land snail (*Polygyra peregrina*), and Pilsbry's narrow apertured land snail (*Stenotrema pilsbryi*).



Illinois Natural History Survey photo

A female Illinois mud turtle (at left) and a male of the species on his back.

Illinois Mud Turtle

The Service has issued a proposed rulemaking to add the Illinois mud turtle (*Kinosternon flavescens spooneri*) to the Endangered list and to designate the reptile's presently known range as Critical Habitat (F.R. 7/6/78).

Need for Protection

Formerly known to occur in several localities in Illinois, Iowa, and Missouri, the Illinois mud turtle is now limited to two areas—one in Illinois and the other in Iowa. The Illinois area is located in Mason County, in the west-central part of the State. The Iowa area lies in Muscantine and Louisa Counties, in the southeastern part of the State near the Mississippi River.

Proposed as Critical Habitat, both of these areas provide ponds and sandy terrain where the turtles can feed, hibernate, reproduce, and take shelter.

The chief threat to these populations—and the principal cause of the decline of other populations—is the adverse alteration of the natural habitat resulting from industrial, agricultural, and recreational activities.

In addition, the Service believes it likely that the turtle's survival may also be threatened by any or all of the following factors: collection of specimens by amateurs; predation by animals, especially during the turtle's nesting and incubation periods; chemical pollution of the ponds; and water level fluctuations in the ponds.

Background

On June 6, 1977, the Service published a notice in the *Federal Register* anouncing that it would undertake a review of 12 turtles, including the Illinois mud turtle (see June 1977 BULLETIN).

Subsequently, the Service received comments and other information on the Illinois mud turtle from both state government and private sources.

The Illinois Department of Conservation recommended Endangered status, noting that it was already in the process of preparing a proposal for submittal to the Interior Department.

The Missouri Department of Conservation wrote that the turtle was listed as rare by Missouri and expressed the view that it may well qualify for listing as Endangered.

Several professional biologists noted the turtle's apparent decline and present rarity, and those who commented on its prospective status all recommended Endangered listing.

Of particular value to the Service was an extensive report submitted by Lauren Brown and Don Moll of Illinois State University.

The Service took all of these comments into account when preparing the proposed rulemaking.

Comments Due

Comments from the public should be submitted by September 5; comments from the Governors of Illinois, Iowa, and Missouri should be submitted by October 5.

Ten Butterflies and Moths

The Service has issued a proposed rulemaking to list three butterflies as Endangered and seven butterflies and moths as Threatened, and to determine Critical Habitat for eight of the insects (F.R. 7/3/78).

The Service believes it is important to provide these species and subspecies with protection under the Endangered Species Act of 1973, in that their populations are small and/or decreasing and their habitats are threatened by the prospect of adverse modification or destruction.

Endangered Butterflies

Proposed for Endangered status are the following three butterflies:

Callippe silverspot butterfly (*Speyeria callippe callippe*). Found only on the San Francisco peninsula, this butterfly depends chiefly on perennial violets for its larval food. Urbanization and commercial development have destroyed the insect's habitat in the city of San Francisco and other places and pose a threat to its remaining range. Two localities in the Oakland zone of San Francisco County are proposed as Critical Habitat.

Palos Verdes blue butterfly (*Glaucopsyche lygdamus palosverdesensis*). The only known population inhabits several acres of fog-shrouded hillside on the Palos Verdes Peninsula in southern California. Accelerated urbanization is a major threat to the survival of the subspecies.

Pawnee montane skipper butterfly *(Hesperia pawnee montana).* The only known population occurs in a 12-mile-long stretch of canyon bottom along the South Platte River in Douglas and Jefferson Counties, in central Colorado. Completion of the Two Forks Dam would inundate 75 percent of the insect's total range, leaving only a few small colonies. The canyon has been proposed as Critical Habitat.

Threatened Butterflies and Moths

Proposed for Threatened status are the following seven butterflies and moths:

Blue-black silverspot butterfly (*Speyeria nokomis nigrocaerulea).* This butterfly is restricted to isolated areas in Arizona, Colorado, and New Mexico (where it may already have been extirpated). Its habitat typically consists of spring-fed meadows or hillside seeps that support the insect's larval food plant, the violet. This habitat is being reduced by irrigation and other agricultural activities and also by road construction.

The area proposed for Critical Habitat contains a recently discovered colony and is located near Tsaile Creek, in northeastern Arizona.

Dakota skipper butterfly *(Hesperia dacotae).* Once prevalent in the North-Central States from North Dakota to Illinois and in Manitoba, this species has declined as the virgin tall-grass prairies have disappeared. Continued agricultural development, urbanization, quarrying, road construction, and water projects constitute a threat to the butterfly's remaining range.

Proposed as Critical Habitat are three localities in central and southwestern Minnesota.

Great Basin silverspot butterfly *(Speyeria nokomis nokomis).* This subspecies is limited to two localities in Mesa and Montrose Counties, in western Colorado, and also may be present in adjoining parts of Utah. The butterfly's existence depends chiefly on the presence of its larval food supply, violets, which in turn require a constantly moist habitat. Consequently, the butterfly is threatened by irrigation practices and other human activities that affect the available water supply. The localities in western Colorado have both been proposed as Critical Habitat.

Karner blue butterfly *(Lycaeides melissa samuelis).* Small populations of this subspecies are scattered across the Northern States (and Ontario) from Minnesota to Massachusetts. The butterfly is closely associated with areas of natural fire climax vegetation —so-called pine barrens areas—which support the wild blue lupine, its larval food supply.

Karner blue butterfly populations in the vicinity of large urban centers, such as Chicago and New York City, have been extirpated as a result of habitat destruction. Elsewhere, other populations are threatened by encroaching urbanization and also by suppression of the natural fire cycle, which in effect changes the habitat and makes it unsuitable for the wild blue lupine.

The area proposed for Critical Habitat, in Albany County, New York, contains the largest known karner blue butterfly population.

The butterfly is already protected by the State of New York.

Oregon silverspot butterfly (*Speyeria zerene hippolyta).* This species is found only in isolated salt-spray meadows along the coast of northern Oregon and extreme southwestern Washington. Real estate development is rapidly reducing this specialized habitat, and there are now only two known colonies of the subspecies that can be considered in good condition. Both of these are in Lane County, Oregon, and their sites have been proposed as Critical Habitat.

One of these sites, however, is privately owned and has been identified as the site of future condominiums.

Kern primrose sphinx moth (*Euproserpinus euterpe).* Formerly presumed to be extinct, this moth was rediscovered in 1975 in California's Walker Basin, located between the Greenhorn Mountains and Piute Mountains. The site is a 4,000-square yard area, most of which is occupied by a barley field on a cattle ranch.

Present management of the ranch does not appear to be a threat to either the moth or its larval food plant, a primrose. However, given the possibility of a change in management and the increasing interest of collectors, the species must be considered as vulnerable and in need of Federal protection.

San Francisco tree lupine moth *(Grapholitha edwardsiana).* Initially discovered in the 1880's, this species was thought to have become extinct by 1960. However, several small colonies were rediscovered in 1977 in the dune system of the San Francisco peninsula. Urbanization has destroyed most of the original dune ecosystem, and the areas proposed for Critical Habitat—both in San Francisco County —need to be preserved because they contain two of the three presently known populations.

Background

The Service published a notice in the March 20, 1975, issue of the *Federal Register* to announce that it was reviewing the status of 42 butterflies, including 4 covered by the present proposal.

Comments received by the Service on these 4 species and subspecies were as follows:

- The Iowa Department of Agriculture felt there is insufficient information to support either Endangered or Threatened status for the Dakota skipper butterfly.
- The Governor of Utah said that Federal action on the Great Basin silverspot butterfly should be deferred until a complete survey and habitat

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inventory have been taken, and that in the meantime Utah would act to protect the subspecies.

- Oregon State University's Department of Entomology recommended that Federal action be taken to preserve the needed habitat of the Oregon silverspot butterfly.
- The New York State Department of Environmental Conservation acknowledged that the Karner blue butterfly may warrant Endangered status.

In addition, the Service received petitions from several professional biologists to add the Karner blue butterfly and also the Kern primrose sphinx moth to the U.S. List of Endangered and Threatened Wildlife and Plants.

Comments Due

Comments from the public on the proposed rulemaking should be submitted to the Service by September 1; comments from the Governors of the states involved are due by October 1.

San Marcos Gambusia and Salamander

To help provide protection for a fish and salamander unique to a spring and its outflow in south-central Texas, the Service has issued a proposed rulemaking to add both species to the U.S. List of Endangered and Threatened Wildlife and Plants and to designate their common range as Critical Habitat (F.R. 7/14/78).

The two species are the San Marcos gambusia (*Gambusia georgei*), proposed for Endangered status, and the San Marcos salamander (*Eurycea nana*), proposed for Threatened status.

Their known range consists of San Marcos Spring together with the upper portion of its outflow, the San Marcos River, which are located in Hays County southwest of the city of Austin.

The future of the species' habitat is threatened by the prospect of reduced spring flow as a result of groundwater pumping from a nearby aquifer; it is estimated that, if the pumping continues, the spring will have only intermittent flow by 1985, likely resulting in the extinction of both species.

San Marcos Gambusia

The present population of the San Marcos gambusia is unknown. In 1969, biologists Clark Hubbs and Alex Peden estimated that less than 1,000 individuals survived. A 1974 survey, however, found only one individual fish, and surveys in 1976 failed to reveal the presence of even one. Some biologists now believe the species may be extinct.

The cause of the fish's decline has not been determined, but it appears to be habitat-related; the severe flooding of the San Marcos River in May 1970 may have been a contributing factor.

The habitat areas known to be preferred by the species are shallows with muddy bottoms, weak currents, and constant temperatures and without dense aquatic vegetation. The feeding habits and requirements of the fish have not been fully determined.

Two other species of gambusia, *G. affinis* and *G. geiseri*, occupy the same bodies of water and are abundant.

San Marcos Salamander

Most of the San Marcos salamanders inhabit a relatively small area of the spring, where there are dense algal mats that provide them with cover and protection from predators as well as with abundant food (principally tendiped larvae and amphipods).

The species is apparently reproducing successfully, and currently the population is rather large and stable.

Nevertheless, anticipated changes in spring flow pose a major threat to the amphibian's limited habitat—and hence to the survival of the species itself.

Background: The San Marcos salamander was one of 10 amphibians identified for status review by the Service in the August 2, 1977, issue of the *Federal Register* (see September 1977 BULLETIN). Subsequently, the Service received comments on this particular species from the State of Texas and several professional biologists. All of the respondents supported listing the species as Threatened, and most of them also provided recommendations on Critical Habitat.

Comments Due

Comments from the public on this proposed rulemaking should be sent to the Service by September 15; those from the Governor of Texas are due by October 15.

Tecopa Pupfish

Based on its determination that the Tecopa pupfish (*Cyprinodon nevadensis calidae)* is now extinct, the Service has issued a proposed rulemaking to completely declassify this Endangered subspecies (F.R. 7/3/78).

Discovered and described by Robert R. Miller in 1948, the Tecopa pupfish was a tiny fish, only about 1.5 inches long, that lived in small pools and thermal springs located within the southern part of the drainage basin of the Amargosa River, near the town of Tecopa in southern California.

During the 1950's, construction of a bathhouse above one of the thermal springs resulted in the rechanneling and combining of two spring outflows, which in turn created an alien habitat for the pupfish. In addition, recently introduced bluegills and other exotics began competing with the pupfish and preying on pupfish juveniles.

The combination of habitat alteration, competition, and predation caused such a marked decline in the Tecopa pupfish population that the subspecies was declared Endangered by the Service in 1970 and also was listed similarly by California.

The first status survey of the subspecies, conducted in 1972, failed to locate any populations in the Tecopa area. An extended survey by biologists from both California and Nevada between 1972 and 1976 was also unsuccessful. A third survey, covering a broader area, was conducted by the State of California in 1977 and resulted in a determination that the Tecopa pupfish is extinct.

Shoshone Pupfish

In its proposed rulemaking on the Tecopa pupfish, the Service also announced that a related subspecies, the Shoshone pupfish (*C. n. shoshone*), has also been determined to be extinct. The bases for this determination are the negative results of several surveys, culminating in the State of California's major survey of 1977.

Consequently, although the Shoshone pupfish was never listed as Endangered or Threatened, the Service proposes to preclude it from any further consideration under the Endangered Species Act of 1973.

Consequently, the Service believes the fish should be declassified and thereby removed from any further consideration under the Endangered Species Act of 1973.

In announcing the proposed ruling, Assistant Secretary of the Interior Robert L. Herbst noted that "the most depressing thing about this loss of life form is that it was totally avoidable. The human projects which so disrupted its habitat, if carefully planned, could have ensured its survival."

If the proposal is finally approved, it will mark the first time that an animal has been removed from the U.S. List of Endangered and Threatened Wildlife and Plants because it is presumed to be extinct.

Comments from the public on this proposal should be submitted to the Service no later than September 1; comments from the Governor of California are due by October 1.

Protection Extended To 3 More Sea Turtle Species

(continued from page 1)

Factfinding concerning these questions and the evaluation of data on the status of the species was complicated by an absence of clear jurisdictional authority between NMFS and FWS over sea turtles. This was resolved with the signing in July 1977 of a memorandum of understanding between the two Federal agencies.

Adequacy of Protection

In finalizing the new classifications for the three sea turtles, the Services said they were needed because existing regulatory mechanisms were inadequate. While nesting females, eggs, and young are often protected from commercial exploitation by state law, there is a lack of uniformity in local controls. Under the Convention on International Trade in Endangered Species of Wild Fauna and Flora, foreign commerce is prohibited as is the importing of turtles harvested outside the 3-mile territorial limit of the United States. But the rulemaking noted that not all countries trading in turtles are parties to the Convention, and the enforcement of various foreign laws protecting sea turtles is not consistent.

Increasing Pressure

Commercial exploitation of the three sea turtles (especially the green—regarded as perhaps the most commercially valuable reptile in the world), loss of nesting habitat through the development of beaches, and predation have created increasing pressure on their numbers in recent years. Turtle meat and turtle eggs are prized delicacies in many parts of the world and the demand has stimulated hunting, particularly for greens and olive ridleys.

Scientists believe large numbers of green turtles nested on Florida beaches up to the 20th century, but they have been nearly extirpated by hunting and condominium and apartment construction. The only remaining Florida population—totaling fewer than 100 mature adults—is known from the State's southeastern coast.

This stock has been declared Endangered because it is believed that any threat—exploitation, incidental take from fishing operations, or loss of habitat—could result in its immediate extinction.

Similarly, evidence submitted during the last comment period on the proposed rulemaking has documented the loss of green sea turtle nesting populations along the Pacific coast of Mexico and their overharvest in the Gulf of California, leading the NMFS and FWS to conclude that these populations could be in danger of extinction in three years. Based upon this evidence, these populations also have been listed as Endangered.

Evidence indicates that the annual take of sea turtles along the Mexican Pacific coast since the early 1960's has been 500,000 to 1 million turtles. An estimated 70,000 female olive ridleys were reportedly taken from a nesting population of 150,000 in Oaxaca State alone during 1977. The NMFS and FWS said that stock "is beginning to show the same signs of stress that existed with the Atlantic ridley in the 1950's" and may be beyond recovery in another eight years unless the pressure is relieved.

Generally, however, it appears that, while there have been drastic declines in certain populations of greens, loggerheads, and olive ridleys, there are no data to indicate that these sea turtle species as a whole are in danger of extinction within the foreseeable future throughout a significant portion of their ranges.

FINAL REGULATIONS

All of the issues discussed in the comments have been addressed in the final regulations, which differ in many respects from the proposed rulemaking. The following is a summary of the major provisions included in the final rulemaking.

Mariculture Prohibited

The proposed regulations contained a two-year exception for mariculture operations which were dependent upon wild turtles for eggs and brood stock. Thereafter, there would be an exception for trade in turtle meat and products produced in a closed-cycle operation of captive turtles. These products would be sold under permit on the condition that they would be marked or otherwise identified as to their source.

The Convention on International Trade generally prohibits trade in six major species of sea turtles or their products (placing lesser controls over trade in flat-back sea turtles and the Australian population of greens). Cayman Turtle Farm, Ltd., and other mariculture operators had been granted an exception from this rule allowing trade in products of captive-bred animals.

After much consideration, NMFS and FWS decided not to allow any exception for mariculture in the final regulations. The services agreed with critics of the operation, believing that "little or no scientific benefit would be received, that the mariculture operations could not be monitored adequately, and that increased worldwide demand for sea turtle products would be encouraged." It is feared that such demand could inspire exploitation of wild stocks as well as poaching, both of which would work against the protective measures mandated under the 1973 act.

Regarding Cayman Turtle Farm, the two services said that, despite the past three years of experimentation, "we do not have sufficient evidence to indicate progress has been made, [and] it is questionable that they will reach the goal of 1980 indicated" when they could successfully raise turtles in a completely closed-cycle system. Cayman Turtle Farm is the largest known sea turtle mariculture operation in the world.

Incidental Catches

Most incidental catches of sea turtles are by shrimp trawlers. Of 46 comments received on the question of granting exceptions to such catches in the regulations, 13 registered opposition. Some felt that this type of taking is a major factor in the sea turtles' decline; others believed it would further jeopardize the potential recovery of the three species.

Some of those favoring exceptions claimed an outright prohibition could destroy the domestic shrimp industry. Concern also was registered over proposed restrictions on fishing in the turtles' "areas of substantial breeding and feeding."

In response, NMFS and FWS said incidental taking would be prohibited for sea turtles designated as Endangered, including the Florida and Pacific coast populations so classified in this ruling in accord with provisions of the Endangered Species Act. Exceptions will be allowed for Threatened populations of the three species subject to the following conditions:

- The taking is by fishing gear dur-

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ing fishing or research activities conducted at sea and not directed toward sea turtles.

- Any sea turtle so taken must be handled with due care to prevent injury to live sea turtles and must be returned to the water immediately whether it is dead or alive; if it is alive and unconscious, resuscitation must be attempted before returning a comatose turtle to the water.
- Any sea turtle so taken must not be consumed, landed, offloaded, transshipped, or kept below deck.

Developing Excluder Panel

At present no method exists to effectively *prevent* the accidental capture of a sea turtle in a shrimp trawl. However, NMFS is doing research on an "excluder panel" that could be fitted across the mouth of standard shrimp trawls to prevent, or substantially reduce, incidental catches. The $500,000 research program is being conducted with the assistance of the shrimping industry, and NMFS hopes an acceptable panel design will be developed this year so that regulations can be drawn up to require the industry's use of the panel.

Other types of fisheries sometimes take sea turtles, but the mortality from these sources is believed to be low compared with that found during shrimp trawling. (The excluder panel would not be useful for turtle protection in non-trawl fisheries.)

As another conservation measure, NMFS and FWS are now considering areas where sea turtles are concentrated for designation as Restricted Fishing Areas or Critical Habitat. Incidental taking would likely be prohibited in these areas seasonally, and other protective regulatory controls may be imposed.

In addition, NMFS plans shortly to propose the Cape Canaveral ship channel in Florida as Critical Habitat for hibernating loggerheads and olive ridleys, which were discovered in the area last winter. (The channel may also be proposed for designation as a Restricted Fishing Area at a later date.) FWS is now preparing a proposal to designate primary nesting beaches as Critical Habitat for the green and loggerhead sea turtles.

The language "areas of substantial breeding or feeding" in respect to fishing restrictions was dropped from the final rulemaking. The two services agreed that it was too vague, unenforceable, and if strictly interpreted could put unnecessary restrictions on the shrimpers.

Subsistence Taking

The Governor of Hawaii asked for an exception for subsistence taking of sea turtles, citing the adequacy of State regulations which allowed the taking of green sea turtles with a carapace length in excess of 36 inches for home consumption.

But in denying the exception, the services said they were concerned about a recent increase in the number of green sea turtle takings and the sale of turtle shell and other products in Hawaii to tourists.

In surveying other requests for subsistence exceptions, the Services decided to permit such taking only where it plays a major role in traditional native culture. The only individuals meeting this criteria were the natives of the Pacific Trust Territories, who will be allowed to take sea turtles for home consumption, but may not take nesting females or turtle eggs.

Other Exceptions

As for all Endangered species, the final regulations allow an exception for taking sea turtles for scientific, propagation, or survival purposes (according to detailed permit procedures).

Exceptions also are authorized under permit for zoological exhibition and educational purposes.

A final environmental impact statement on this action has been published by NMFS (c/o NOAA, U.S. Department of Commerce, Washington, D.C. 20230).

More Conservation Steps

In addition to the conservation steps outlined in the rulemaking, the two services are moving to protect sea turtle habitat along coastal waters of the United States and the shores of Carribean islands, including recent proposals to list Sandy Point Beach on the western end of St. Croix as Critical Habitat for nesting leatherbacks (see the April 1978 BULLETIN) and to designate certain areas within the Commonwealth of Puerto Rico as Critical Habitat for the hawksbill (see June 1978 BULLETIN). FWS is now preparing a proposal to designate primary nesting beaches as Critical Habitat for the green and loggerhead sea turtles.

In late June, more than 100 representatives of Federal and state agencies, private industry, universities, and environmental organizations reviewed the draft of a comprehensive NMFS plan for the recovery and management of sea turtles in the western Atlantic and Carribean. The plan is expected to be put into effect next year (see the July 1978 BULLETIN).

Officials are hopeful that these and future conservation measures will allow all species of sea turtles to survive and recover.

ENDANGERED SPECIES SCIENTIFIC AUTHORITY

Notices—August 1978

The Endangered Species Scientific Authority (ESSA) is responsible for the biological review of applications to import or export species listed in Appendix I, and to export species listed in Appendix II, of the Convention on International Trade in Endangered Species of Wild Fauna and Flora. Notices of the ESSA's findings are published in the Federal Register. *Summaries of these notices are reported in the* BULLETIN *by month of publication.*

Bobcat, Lynx, Otter, Ginseng '78-'79 Exports Proposed

The Endangered Species Scientific Authority (ESSA) has proposed findings on a state-by-state basis for export of bobcat, lynx, and river otter pelts taken in the 1978-79 season and for American ginseng roots harvested in 1978 (F.R. 7/7/78 and as revised in F.R. 8/7/78).

As the three furbearers and plant are protected under the Convention on International Trade, ESSA is responsible for determining that export of the four species—listed in Appendix II of the Convention—will not be detrimental to their continued survival.

In developing its proposal, ESSA considered a combination of biological information and management initiatives, as set forth in its April notice (F.R. 4/10/78). Approval of exports has been proposed (without quotas) for those populations of bobcat, lynx, and river otter in states meeting the minimum information requirements recommended earlier this year by the New Orleans Working Group, a body of 12 professional biologists headed by Dr. L. David Mech of the Fish and Wildlife Service. These requirements include population trend data, information on total harvest of the species, distribution of the harvest, and habitat evaluation. States also must have a management program which provides for a controlled harvest, registration and marking of pelts, and harvest level objectives determined annually.

Exceptions were made for some states which could not meet all of the requirements outlined, as ESSA considered other information to be sufficient for a finding of no detriment.

Bobcat/River Otter Quotas

For states which lack the legislative

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authority to limit bobcat harvests, ESSA proposed to approve export subject to Federal quotas, provided that the state wildlife agencies had implemented programs to evaluate the impact of harvests and were able to demonstrate that export subject to a quota for 1978-79 will not be detrimental to the survival of the species in the state.

ESSA said that only three state wildlife agencies now lack authority to limit bobcat harvests. (All have authority to regulate the harvest of river otters.) ESSA cautions that its proposed approval of limited quotas in these cases "should not be construed as a precedent for approval in the future."

Lynx Exports

ESSA also proposed to find in favor of exports of lynx pelts legally taken in four states—Alaska, Idaho, Minnesota, and Montana. Approval was withheld for a fifth state, Washington, until new information on lynx harvests is received.

Alaska had no export limitation for 1977-78, and reported a harvest of 1,620 lynx pelts. Idaho and Minnesota each had quotas of 25 and each reported harvests of 15 pelts. Montana's quota was 200, but only 24 lynx were reported taken, due to the severe winter weather.

Ginseng Exports

American ginseng is found in 32 states in the eastern half of the country and in adjacent Canada. About 12 states provide most of the harvest of roots, both cultivated and wild. Total exports for 1977 have been valued at over $26 million.

ESSA said there are conflicting opinions about the status of wild American ginseng; many botanists, state and Federal officials, and a few collectors and dealers believe that the plant is endangered or rare, while others—mostly collectors and dealers—contend that the plant's status is stable or improving.

For the 1978 harvest, ESSA proposed to limit export approval to six states which regulate harvests or have conservation programs for the plant. These states and their reported 1977 harvests are Kentucky (52,700 pounds), Maryland and Michigan (no figures available), Missouri (6,100 pounds), North Carolina (16,615 pounds), and West Virigina (20,385 pounds). As with the furbearers, ESSA cautions that a finding in favor of exports of this year's harvest should not be considered a precedent.

Proposed findings and quotas for the bobcat and river otter are summarized in the accompanying table.

Comments on the proposed findings were due August 23, 1978.

FINDINGS FOR BOBCAT, RIVER OTTER

	Bobcat				River Otter			
State	1977-78 Quota	Harvest	Report Sources	1978-79 Findings	1977-78 Quota	Harvest	Report Sources	1978-79 Findings
Ala.	4,000	NC		NDR	1,500			NDR
Alaska	(not present in State)				open	1,981	TR(90%)	A
Ariz.	8,000	4,992	ET	A	(protected in State)			
Ark.	3,000	NC	DR	IDR	400	NC	DR	IDR
Calif.	6,000	5,111	ET	A	(protected in State)			
		15,000	HS('77)					
		208	ADC					
Colo.	4,000	1,300	ET	IDR	(protected in State)			
Conn.	(protected in State)				100	63	ET	A
Del.	(not present in State)				60			NDR
Fla.	3,500	678	DR	A	6,000	1,707	ET	A
		983	ET			3,326	DR	
Ga.	4,000	2,793	DR(93%)	A	4,000	3,097	DR(93%)	A
Hawaii	(not present in State)				(not present in State)			
Idaho	1,475	776	ET	A	(protected in State)			
Ill.	(protected in State)				(protected in State)			
Ind.	(protected in State)				(protected in State)			NEA
Iowa	(protected in State)				0			
Kans.	none set	2,145	TS	A	(protected in State)			
Ky.	(protected in State)				(protected in State)			
La.	4,000			NDR	7,500			NDR
Maine	500	389	TR, HR	A	600	675	TR	A
Md.	(protected in State)				165			NDR
Mass.	50			NDR	68			NDR
Mich.	350	331	TR, HR	A	810	660	TR	A
Minn.	150	103	TR, HR	A	700	492	ET	A
		86	ET					
Miss.	4,000	NC		IDR	350	NC		IDR
Mo.	(protected in State)				(protected in State)			
Mont.	1,070	636	TR, HR	A	36	40	TR	A
Neb.	400	94	ET	A	(protected in State)			
		112	ET + Res.					
		200	TS(ADJ)					
Nev.	2,225	1,795	TS(63+%)	A	0			NER
		2,225	ET					
		2,818	TS(ADJ)					
N.H.	(protected in State)				200	NC	TR	IDR
N.J.	(protected in State)				(protected in State)			
N.M.	6,000	4,416	ET	Q: 6,000	(protected in State)			
		4,606	TS					
N.Y.	225	74	TR, HR	A	700	467	TR	A
		80-90	TR, HR			500±20	TR	
		20	ET					
N.C.	800	800	ET	A	1,200	1,200	ET	A
		593	DR			927	DR	
N.D.	165	61	ET	A	(not present in State)			
Ohio	(protected in State)				(protected in State)			
Okla.	0	2,459±30	DR	A	(protected in State)			
Ore.	3,000	2,930	ET	A	335	300	ET	A
		NC	TR, DR, HR					
Pa.	(protected in State)				(protected in State)			
R.I.	(protected in State)				15	15+	TR(50%)	A
S.C.	(sale of pelts illegal 77-78)				650	8	ET	NDR
S.D.	500	84	TR, HR	A	(protected in State)			
Tenn.	1,000	597	ET	A	(protected in State)			
		800	ET(ADJ)					
Tex.	10,000			IDR	0			NER
Utah	(protected in State)				(protected in State)			
Vt.	200	82	TR, HR	IDR	50			NDR
Va.	1,500			NDR	585			NDR
Wash.	6,000	2,700	TR, HS	A	770	760	TR	A
		1,481	ET			538	ET	
W. Va.	500	535	TR, HR	A	(protected in State)			
		150	ET					
Wis.	300	163	TR, HR	A	1,200			NDR
Wyo.	2,000			NDR	(protected in State)			
Navajo Nation	500	7	ET	A	(not present)			
		77	ET, ADC, TR					

Reporting symbols: NC=not compiled; ET=export tag; DR=dealer report; HR=hunter report; TR=trapper report; TS=trapper survey; ADC=animal damage control; ADJ=adjusted to account for incomplete reports

Finding symbols: A=approved; IDR=incomplete data received; NDR=no data received; NER=no report requested; NEA=no export approved; Q=quota

Pending Rulemakings

The Service expects to issue rulemakings and notices of review on the subjects listed below during the next 90 days. The status or action being considered for each final and proposed rulemaking is given in parentheses.

The decision on each final rulemaking will depend upon completion of the analysis of comments received and/or new data made available, with the understanding that such analysis may result in modification of the content or timing of the original proposal, or the rendering of a negative decision.

Pending Final Rulemakings

- 6 butterflies (C.H.)
- Grizzly bear (C.H.)
- 13 crustaceans (E, T)
- Black toad (T, C.H.)
- 2 zebras (E)
- 12 Western snails (T)
- 2 big-eared bats (E)
- 3 Ash Meadows plants (E)
- 5 plants (E)
- 6 San Francisco Bay Area plants (E, T)
- 2 California plants (C.H.)
- Leatherback sea turtle (C.H.)
- 2 North Carolina plants (E, T)
- 2 cacti in Colorado and Utah (E)
- Dinosaur milk-vetch in Utah (E)

Pending Proposed Rulemakings

- 10 North American beetles (E, T)
- 2 harvestment (E, T)
- 3 mussels (C.H.)
- Rocky Mountain peregrine falcon population (C.H.)
- Colorado squawfish (C.H.)
- Virgin River chub (E, C.H.)
- Desert tortoise (Beaver Dam slope population) (E, C.H.)
- Unarmored threespined stickleback (C.H.)
- Puerto Rican whip-poor-will (C.H.)
- Laysan duck (C.H.)
- Whip-scorpion (E, C.H.)
- Valdina Farms salamander and isopod (E. C.H.)
- 2 plants (E) and 6 plants (C.H.)
- 20 Appendix I spp.
- Cui-ui (C.H.)
- Whooping crane (C.H.—additional areas)
- Bolson tortoise (E)
- Coachella Valley fringe-toed lizard (T, C.H.)
- 7 Oregon freshwater fishes (E, T, C.H.)
- Light-footed clapper rail (C.H.)
- Yellow-shouldered blackbird (C.H.)
- Virginia fishes (T, C.H.)
- 3 Texas fishes (E, T, C.H.)
- Leopard (reclassification to T)
- 4 Yaqui River fishes (E, C.H.)
- Southeastern fishes (E, T, C.H.)
- Green sea turtle (C.H.)
- Gray bat (C.H.)
- Columbian white-tailed deer and Sonoran pronghorn (C.H.)
- Warner sucker, Oregon (E, C.H.)
- 4 fishes in Kansas, Missouri, and Arkansas (T, C.H.)

Pending Notice of Review

- Desert tortoise

Abbreviations: E—Endangered, T—Threatened, C.H.—Critical Habitat

BOX SCORE OF SPECIES LISTINGS

Category	Number of Endangered Species			Number of Threatened Species		
	U.S.	Foreign	Total	U.S.	Foreign	Total
Mammals	33	227	260	3	18	21
Birds	67	144	211	3		3
Reptiles	11	47	58	9		9
Amphibians	5	9	14	2		2
Fishes	29	10	39	12		12
Snails	2	1	3	5		5
Clams	23	2	25			
Crustaceans	1		1			
Insects	6		6	2		2
Plants	15		15	2		2
Total	192	440	632	38	18	56

Number of species currently proposed: 141 animals
1,850 plants (approx.)
Number of Critical Habitats proposed: 56
Number of Critical Habitats listed: 29
Number of Recovery Teams appointed: 63
Number of Recovery Plans approved: 18
Number of Cooperative Agreements signed with States: 22

July 31, 1978

New Publications

Two reports have been issued by Canada's National Museum of Natural Sciences. They are "The Rare Vascular Plants of Alberta," by George W. Argus and David J. White, and "The Rare Vascular Plants of Nova Scotia," by Robert V. Maher, David J. White, George W. Argus, and Paul A. Keddy.

Copies may be obtained from the Botany Division, National Museum of Natural Sciences, Ottawa, Ontario K1A OM8.

ENDANGERED SPECIES TECHNICAL BULLETIN

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